

A-98009 PCT

CLAIMS

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1. A process for surface treatment of mineral materials, characterized in that it includes the following steps
 - a) effect of laser radiation onto the surface and
 - b) application of an organo-silicide composition onto the surface
 2. A process according to claim 1, characterized in that by means of the effect of laser radiation laser induced surface indentations are created with an average diameter of 5 to 900 μm , particularly preferred between 10 to 150 μm .
 3. A process according to one of the preceding claims, characterized in that by the effect of laser radiation laser induced indentations are created with an average depth between 10 to 400 μm , particularly preferred between 20 to 200 μm .
 4. A process according to one of the preceding claims, characterized in that by the effect of laser radiation at least 2.5 million surface indentations per m^2 are created.
 5. A process according to one of the preceding claims, characterized in that as an organo-silicide composition alkylsilanole, alkylalkoxysilane, alkoxysilane, oligo and polysiloxane and/or silicone is applied, sometimes having one or several of the following functional groups: hydroxy, halogen, in particular, chlorine, amino, carboxy, cyano, methacryloxy, epoxy, mercapto, or vinyl.

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6. A process according to one of the preceding claims, characterized in that the organo-silicide composition is applied in the form of an aqueous dispersion.
 7. A process according to one of the preceding claims, characterized in that the organo-silicide composition is applied in the form of an aqueous dispersion containing a dispersing supporting agent.
 8. A process according to one of the preceding claims, characterized in that the organo-silicide composition is applied in the form of an aqueous dispersion together with a fluoropolymer.
 9. A process according to one of the preceding claims, characterized in that subsequently to the application of the organo-silicide composition a surface treatment is performed by means of thermal energy, UV- or IR-radiation, microwaves and/or lasers.
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10. A mineral material, characterized in that it has
 - A) laser induced surface indentations, a laser induced surface removal and/or a laser induced smoothening of the surface and
 - B) an organo-silicide composition on the surface, in particular in the surface pore regions of the mineral material near to the surface, or the product of transformation, sometimes under the influence of an increased temperature, an organo-silicide composition with the surface of the mineral material.
 11. A mineral material according to claim 10, characterized in that the laser induced surface indentations are provided with an average depth of 10

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to 400 μm , particularly preferred between 20 to 200 μm .

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12. A mineral material according to claim 10 or 11, characterized in that the laser induced surface indentations are provided with an average diameter between 5 and 900 μm , particularly preferred between 10 and 150 μm .
13. A mineral material according to claims 10 through 12, characterized in that the surface is provided with at least 2.5 million laser induced surface indentations per m^2 .

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